



Department of Commerce
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Green Power Programs in Washington



2011 Report to the Legislature

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Acknowledgements

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Table of Contents

Executive Summary	1
Introduction.....	2
Background	2
Overview of Survey Results	4
Statewide Green Program Fuel Resources	5
Green Power Sales Volume	7
Customer Participation	10
Comments from Utilities.....	10
Conclusions.....	11

Tables

Table 1 - Washington State Summary Data.....	4
Table 2 - Description of Utility Green Power Programs	5
Table 3 - Green Power Program kWh Sales by Utility 2002-2010	8

Figures

Figure 1 - Washington State Total Green Power Program Sales and Number of Program Participants	4
Figure 2 - 2010 Fuel Mix for Voluntary Green Power Programs	6
Figure 3 - Green Power Program kWh Sales 2002-2010, Full Scale	7
Figure 4 - Green Power Program kWh Sales 2002-2010, Small Scale	7
Figure 5 - Green Power Sales as a Percent of Total Utility Sales 2011.....	9
Figure 6 - Customer Participation Rate in Voluntary Green Power Programs.....	10

Executive Summary

Washington State RCW 19.29A.090 directs larger electric utilities to offer their customers a “green power” electricity product – electricity that comes from environmentally benign sources such as wind, solar, landfill gas and other sources identified in statute – which customers may purchase voluntarily. The law asks utilities to report annually on the progress of these voluntary green power programs to the Washington State Department of Commerce (Commerce) and the Washington Utilities and Transportation Commission (UTC). This is the eleventh reporting year.

The following are key findings:

- All 16 utilities affected by the law have submitted data for this report. All of these utilities have active programs with customers participating. Two of the utilities, Grant County Public Utility District (PUD) and Benton PUD, do not associate actual kWh sales with the revenue received from their customers. In addition, two utilities not affected by the law, Orcas Power and Light Cooperative and Pacific County PUD #2, voluntarily operate green power programs; their data is included here.
- Between January and September 2011, customers purchased 380,184,613 kilowatt-hours (kWh), or 43.4 average megawatts (aMW), of green power through voluntary green power programs. The estimated annual 2011 green power sales of 529,705,964 kWh represent a 5.9 percent increase over 2010 sales.
- Wind-powered electricity represented 53 percent of the 2010 green power sales.
- 51,616 utility customers in Washington are participating in these voluntary utility programs. This is a 9.1 percent increase in customer participation since 2009.
- Expected revenue from green power sales of the utilities surveyed increased 6.5 percent between 2010 and 2011.

Introduction

Engrossed House Bill 2247, enacted in 2001,¹ requires certain electric utilities in Washington State to offer their retail customers an option to purchase qualified alternative energy resources – often referred to as “green power.”² This law also requires the electric utilities to report annually the details of their green power programs to Commerce and the UTC until December 2012 whereupon the reporting requirement ends while the requirement to provide a green power program remains intact. Upon receiving the data each year, the agencies must prepare and submit a report to the Legislature. This report provides an update on performance of green power programs using data for 2010 and January through September of 2011. It gives a summary of each utility’s program, participation levels, program revenues and electricity sales.

To assist the utility reporting process, Commerce surveyed the 16 consumer-owned and investor-owned electric utilities required to respond. Two smaller utilities not covered by the law, Orcas Power and Light Cooperative and Pacific County PUD #2, responded voluntarily.

Background

The law gives utilities two options to provide qualified alternative energy resources: green power – the actual electricity produced by green power resources – and green tags. Green tags, often called “renewable energy credits,” are a type of currency used in the electricity industry to represent the environmental and social benefits of clean electricity production. They are separated from the electricity produced and sold as a distinct product. A green tag represents the environmental attributes equivalent to a specific amount of electricity produced by renewable resources.

With green tags, the purchaser does not need to schedule or transmit the green power to a specific distribution utility or customer. Avista, Clallam County PUD, Clark County PUD, PacifiCorp, Peninsula Light, Puget Sound Energy, Seattle City Light, Snohomish County PUD and Tacoma Power sell green tags for their green power programs.

In 1999, the Bonneville Power Administration (BPA) began to sell a resource-specific electricity product, “Environmental Preferred Power,” or “EPP,” to wholesale customers. EPP includes a mix of renewable resources, not including large-scale hydropower. A small group of electric utilities in Washington began to purchase EPP prior to the establishment of green power programs and continue to purchase it. This product ensures that BPA’s utility customers have ready access to a specific green power product. Clark County PUD, Orcas Power and Light, Peninsula Light and Pacific County PUD purchased EPP in 2010.

Energy products (renewable energy or RECs) sold through green power programs are optional for customers who want to spur investment in renewable sources of energy). The sale of green

¹ L2001, ch. 214.

² The requirement is codified in RCW 19.29A.090. A “qualified alternative energy resource” is electricity produced from generation facilities fueled by wind, solar energy, geothermal energy, landfill gas, wave or tidal action, gas produced during the treatment of wastewater, qualified hydropower or biomass. RCW 19.29A.090(3). Small (or rural) utilities were exempted. A “small utility” is any consumer-owned utility with 25,000 or fewer electric meters in service, or that has an average of seven or fewer customers per mile of distribution line. RCW 19.29A.010(30).

power program products does not get directly represented in the purchases a utility makes in order to meet day to day electricity demand – the primary sources used to meet retail customer load. Green power participation is a financial demonstration of customer interest in renewable energy represented in terms of kilowatts.

The utility's energy portfolio (the sources used to meet retail load) is now governed by standards that require a minimum amount of renewable energy or conservation. Utilities also do not report green power program sources as part of their annual fuel mix which also addresses energy purchased on behalf of customer retail load.³

The US Department of Energy (DOE) National Renewable Energy Laboratory (NREL)⁴ tracks and ranks voluntary utility green power programs nationwide. Their May 2011 report of 2010 green power programs cited sales exceeding 6 million megawatt-hours with wind representing more than 75 percent of these sales. Over 850 utilities across the nation offer green power programs. Two utilities with customers in Washington State are featured in the NREL "Top Ten" list of successful green power programs; PacifiCorp (Ranking 3rd) and Puget Sound Energy (Ranking 6th). Inclusion on this list is based upon factors such as green program energy sales, customer participation rates and competitive pricing of green products. Eleven states have utility mandatory green power policies constituting nearly half of total US utility retail electricity sales. Voluntary programs also exist in many states and communities. NREL projects a decline in the voluntary green power program market share through 2015 as Renewable Portfolio Standards begin to drive much of the growth in renewable generation.

³ For more information on utility resource planning, see Electric Utility Resource Plans: <http://www.commerce.wa.gov/site/1140/default.aspx>. For more information on fuel mix disclosure, see Fuel Mix Disclosure: <http://www.commerce.wa.gov/site/539/default.aspx>

⁴ NREL News Release NR-2211, <http://www.nrel.gov/news/press/2011/1367.html>, Top Ten Utility Green Power Programs (as of December 2010), <http://apps3.eere.energy.gov/greenpower/resources/tables/topten.shtml> <http://apps3.eere.energy.gov/greenpower/pdfs/48158.pdf> <http://www.nrel.gov/docs/fy10osti/48158.pdf>

Overview of Survey Results

Table 1 summarizes state-level results for 2002 through 2010 plus an annualized estimate based on the first nine months of 2011. Total participation, revenue and kilowatt-hour sales have increased each year of the program.

Table 1* - Washington State Summary Data

	Total kWh sales of green power	Total Revenue from green power programs	Total number of green power program participants
2002	19,762,528	\$632,282	12,196
2003	51,924,642	\$1,254,067	17,795
2004	104,435,100	\$1,911,861	26,341
2005	167,600,236	\$2,689,387	29,187
2006	265,873,502	\$3,528,107	31,909
2007	393,619,512	\$4,454,439	35,984
2008	484,133,391	\$5,405,065	40,820
2009	495,023,552	\$5,551,841	47,320
2010	500,130,501	\$5,850,317	51,616
2011 forecast*	529,705,964	\$6,230,248	not available
Percent change since previous year	5.9%	6.5%	9.1%

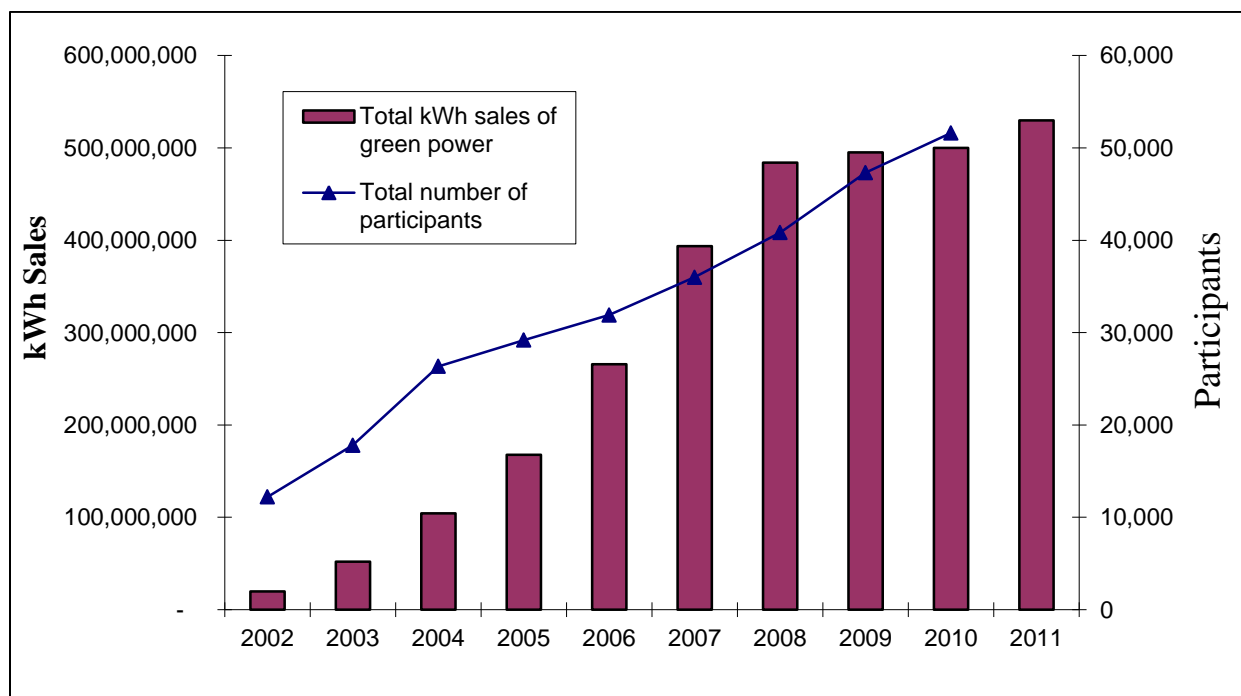


Figure 1* - Washington State Total Green Power Program Sales and Number of Program Participants

*2011 data was projected out to year end using the first six to nine months of 2011.
Green Power Programs in Washington – 2011

Table 2 describes each utility's program by name and price. The programs are offered to all customers. Most Washington utilities offer a "block" option to participants in their green power programs. A "block" of power refers to a specific number of kWh combined into a block; the participant pays a flat rate for each block of power. Customers have the option of buying any amount of blocks of green power each month. For example, Avista markets its program as a "Buck a Block," selling 300 kWh of wind power in one block for \$1.00. Benton County PUD has a contribution-based program in which participants contribute to the higher cost of blending green power into the utility's general electricity mix which is sold to all customers. The additional green power is not sold separately on a per-kWh basis to the participants. Noticeably wide variations among the price per kWh reflect differences in costs and divergent methods of accounting for these costs. No attempt has been made to adjust for inconsistency in reporting.

Table 2 - Description of Utility Green Power Programs

Avista	Buck-A-Block	\$1 per 300 kWh block
Benton County PUD	Green Power Program	Voluntary \$ donation not tied to kWh
Chelan County PUD	Sustainable Natural Alternative Power (SNAP)	Suggested contributions to this voluntary program range from \$2.50 to \$10 per month for residential and up to \$50 per month for businesses.
Clallam County PUD	Watts Green	\$0.07 per kWh Landfill Gas Power Generation
Clark County PUD	Green Lights Program	\$1.50 per 100 kWh block. Wholesale contract for program is through Bonneville Environmental Foundation.
Cowlitz County PUD	Renewable Resource Energy Program	\$.02 per kWh
Grant County PUD	Alternative Energy Resources (Rate 13)	\$2 per 100 kWh block
Grays Harbor County PUD	Green Power Program	\$3 per 100 kWh block
Lewis County PUD No 1	Green Power	\$2 per 100 kWh block
Mason County PUD #3	Mason Evergreen Power	\$1 per 100 kWh block, or \$0.01 per kWh
Orcas Power and Light Cooperative	MORE (Member Owned Renewable Energy)	\$4 per 100 kWh block
PacifiCorp	Blue Sky	\$1.95 per 100 kWh
Pacific County PUD #2	Green Power	\$1.05 per 100 kWh block

Peninsula Light Company	Green by Choice	\$2.80 per 100 kWh
Puget Sound Energy	PSE's Green Power Program	\$2 per 160 kWh block (4.00 min) or \$0.0125/kWh
Seattle City Light	Green Up	\$0.02 per kWh
Snohomish County PUD	Planet Power and Green Blocks	A. Planet Power: Monthly subscriptions start at \$3 per month or any whole dollar amount above that B. Green Blocks: \$3 per 350 kWh block
Tacoma Power	EverGreen Options	\$0.01 per kWh

Statewide Green Program Fuel Resources

In 2010, 500,130,501 kWh were sold through these programs. More than 50 percent of the power offered in these programs is wind power. The change in the resource mix from 2009 is due to a 23 percent decrease in the amount of kWh generated by wind, a 285 percent increase in kWh generation by qualified hydropower, an approximately 100 percent increase in kWh generation by biomass, a 23 percent decrease in the amount of generation by landfill gas, a 598 percent increase in the amount of kWh generated by solar projects, and a 7 percent increase in the amount of geothermal.

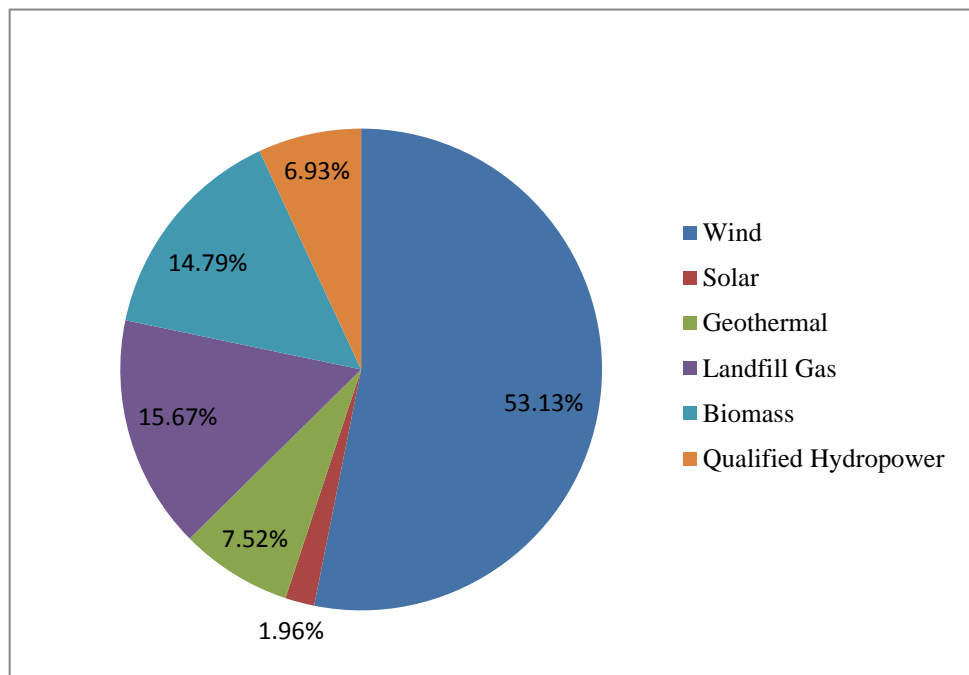


Figure 2 – 2010 Fuel Mix for Voluntary Green Power Programs

Green Power Sales Volume

Figures 3 and 4 indicate the amount of green power sold by each of the utilities during each of the years of the program. These two figures show the same data at different scales to provide an accurate visual portrait of all utilities sales volume. Table 3 includes the numerical results.

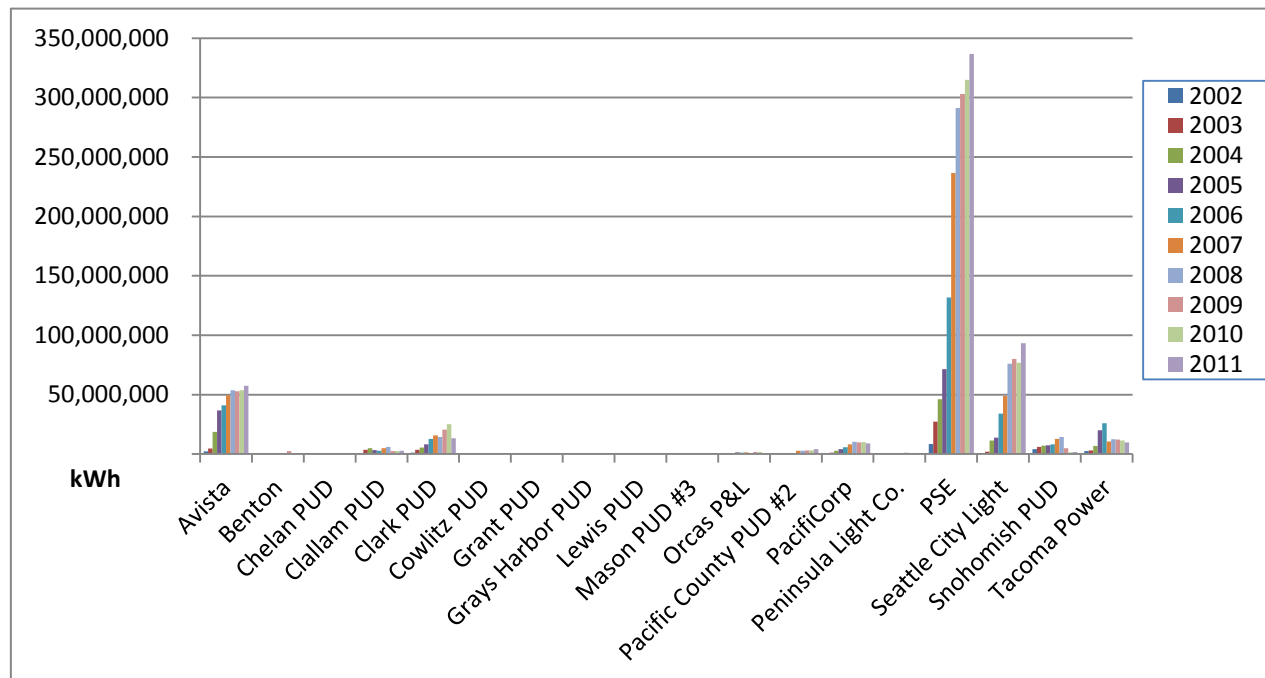


Figure 3* – Green Power Program kWh Sales 2002-2010, Full Scale – to 350,000,000

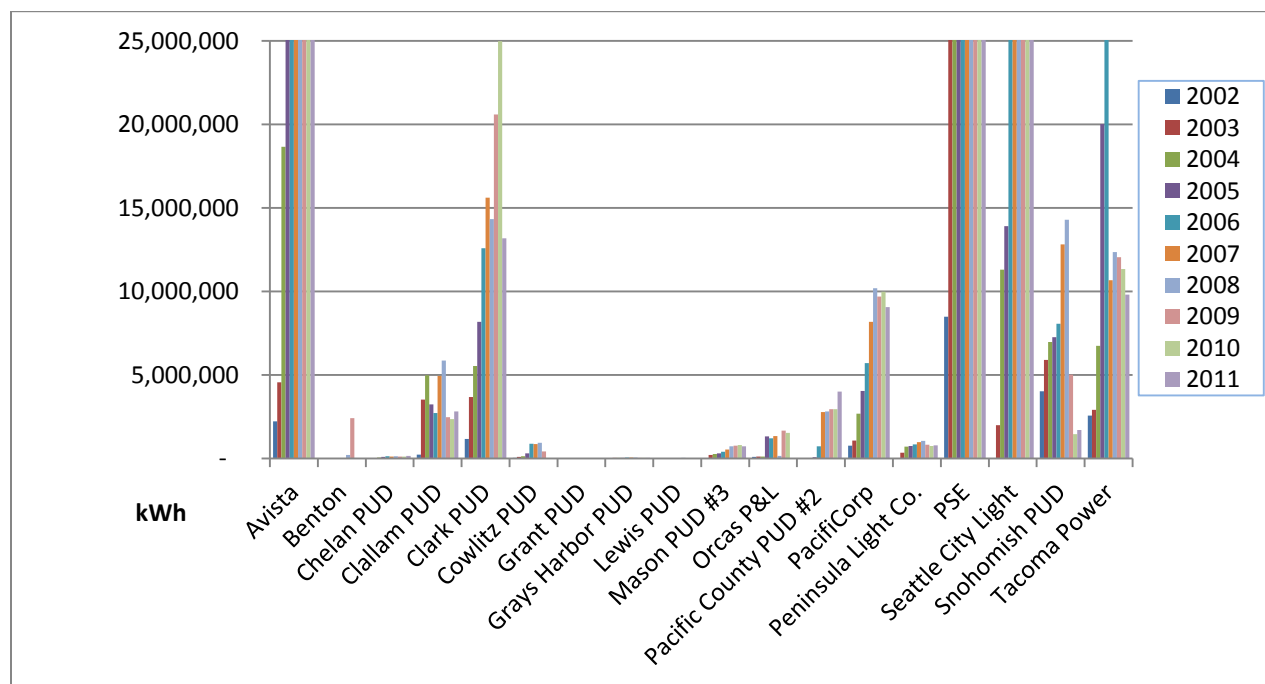


Figure 4* –Green Power Program kWh Sales 2002-2010, Small Scale – to 30,000,000 kWh

*2011 data was projected out to year end using the first six to nine months of 2011.

Table 3 – Green Power Program kWh Sales by Utility 2002-2011

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011*
Avista	2,224,750	4,564,615	18,646,746	36,617,700	40,855,800	49,667,400	53,627,700	52,949,400	53,624,100	57,440,250
Benton PUD**	-	-	-	-	-	258,898	224,227	2,430,000		
Chelan PUD	28,507	34,329	64,840	105,133	140,626	106,901	142,373	116,063	116,063	161,279
Clallam PUD	244,179	3,534,336	4,991,521	3,247,989	2,730,365	5,366,179	5,874,237	2,472,146	2,356,442	2,817,766
Clark PUD	1,178,666	3,689,100	5,545,000	8,189,000	12,590,000	16,380,000	14,330,550	20,580,200	24,972,000	13,172,000
Cowlitz PUD	55,690	97,078	148,171	318,229	880,974	883,481	944,360	438,620	11,000	0
Grant PUD **	9,500	-	-	-	0	0	0	0	0	0
Grays Harbor PUD	33,500	48,500	53,400	50,700	57,600	62,500	61,867	47,400	43,200	42,000
Lewis PUD	-	22,400	35,200	32,600	32,600	25,800	51,200	30,000	30,000	35,400
Mason PUD #3	-	217,900	282,600	309,540	405,386	586,271	739,095	783,940	803,821	739,907
Orcas P&L	99,400	125,600	117,361	1,322,531	1,206,116	1,527,147	163,881	1,665,492	23,925	
Pacific County PUD #2	-	-	-	81,100	736,000	1,895,988	2,828,784	2,952,888	2,952,888	4,005,984
PacifiCorp	783,000	1,076,800	2,695,300	4,049,100	5,711,400	8,887,200	10,195,200	9,690,400	9,980,049	9,064,604
Peninsula Light Co.	4,772	361,428	725,778	746,000	851,706	960,240	1,066,933	840,000	746,400	784,800
PSE	8,496,000	27,313,000	46,110,000	71,341,000	131,742,000	246,405,800	291,166,599	303,046,167	314,892,507	336,568,425
Seattle City Light	-	2,000,000	11,294,000	13,905,000	33,958,000	53,137,600	76,071,600	79,907,000	76,784,000	93,351,000
Snohomish PUD	4,037,231	5,914,065	6,985,955	7,268,100	8,059,659	13,100,025	14,284,560	5,029,258	1,455,460	1,714,088
Tacoma Power	,567,333	2,925,491	6,739,228	20,016,514	25,915,270	10,890,975	12,360,225	12,044,578	11,338,646	9,808,461
TOTAL	17,195,195	48,999,151	97,695,872	167,600,236	265,873,502	410,142,405	484,133,391	495,023,552	500,130,501	529,705,964

*2011 data was projected out to year end using the first six to nine months of 2011.

Figure 5 provides the green power sales as a percentage of total utility retail sales to indicate relative activity at each utility and the resulting sales to customers for different types of programs. PSE, Pacific County PUD #2, Avista, and Seattle City Light have the highest green power sales penetration rates. Clallam PUD's program is unique within the state; it offers one inclusive green power product at one price for its customers. The revenues from this program represent actual kWh sales whereas other programs represent just the incremental cost of the green power product. Several consumer-owned utilities purchase renewable power or renewable power tags on behalf of all their customers, and then offers some of this product at a separate, additional price to their green program participants.

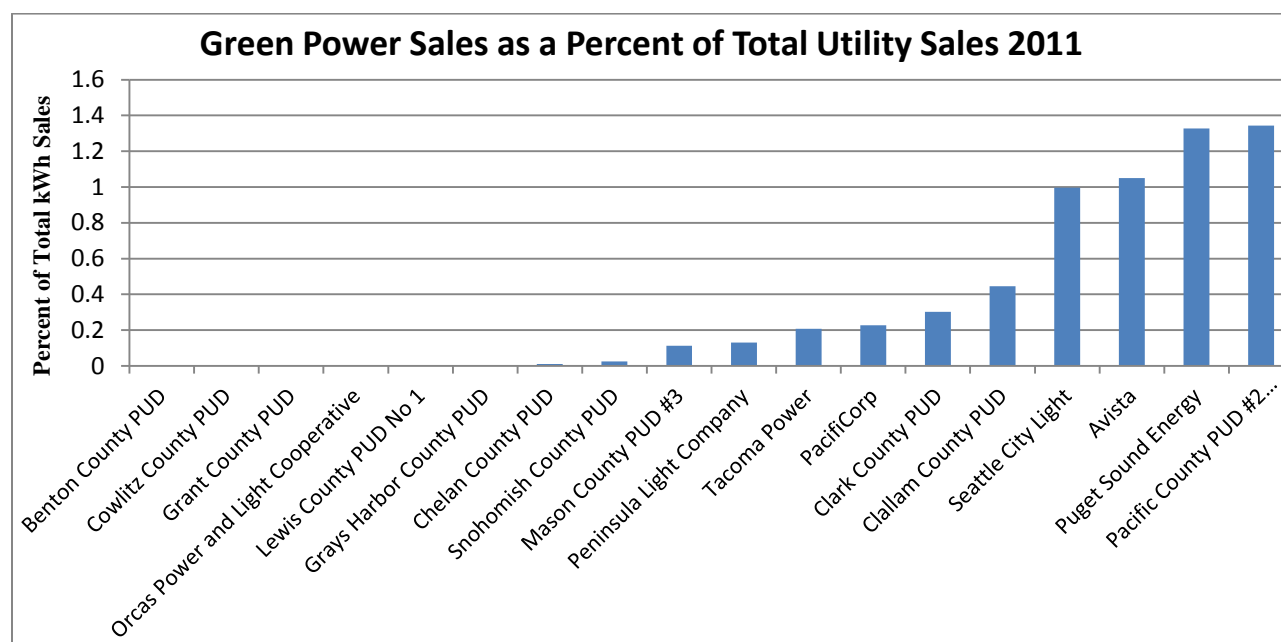


Figure 5*- Green Power Sales as a Percent of Total Utility Sales, 2011

*2011 data was projected out to year end using the first six to nine months of 2011, comparing each utility's 2010 total sales to its 2011 projected green power sales.

Customer Participation

Figure 6 indicates the level of customer participation by utility as a percentage of total customers. For 2010, Pacific County PUD #2 has the highest participation rate at 4.5 percent, followed by Orcas Power and Light at 4.5 percent, Seattle City Light at 2.9 percent, PSE at 2.7 percent, and PacifiCorp at 1.8 percent. Statewide, in 2010, there are 51,616 customers (1.8 percent of eligible customers) voluntarily making the decision to purchase these differentiated green power products.

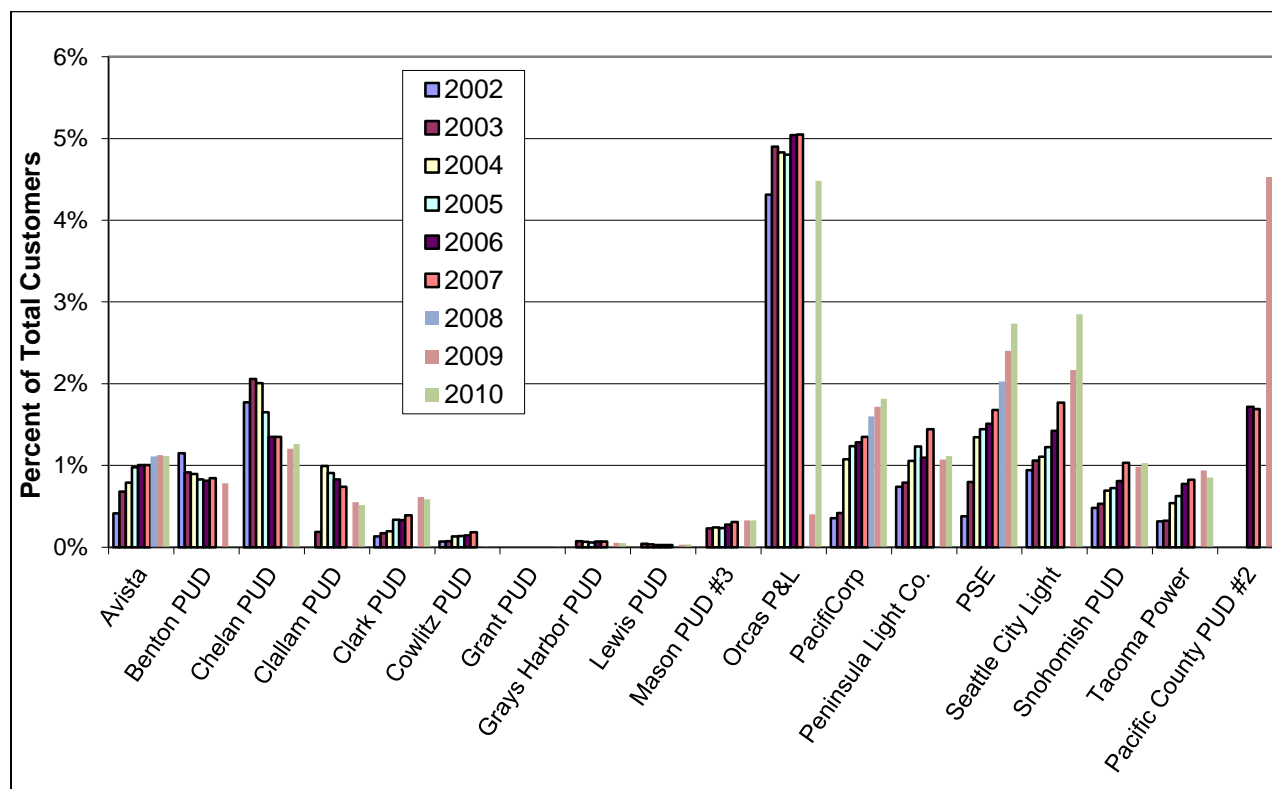


Figure 6 - Customer Participation Rate in Voluntary Green Power Programs - 2002 to 2010

Comments from Utilities

The survey gave utilities the opportunity to make comments to policy makers. Four utilities offered comments in 2011:

“As it relates to this study, Grant PUD is in a unique position with our Alternative Energy Resources program. As the owner/operator of the nation’s largest non-federal hydroelectric project, our customers are keenly aware of the renewable nature of hydropower. We have an investment in the Nine Canyon Wind Project that delivers wind power to our customers. In addition, we have made a substantial investment in upgrading the turbines at Wanapum Dam to deliver more power by using the same amount of water. When these two items are paired, we find that our customers do not see the benefit in purchasing additional renewable power, when they consider their existing electricity to be provided by renewable resources.”

- *Grant County PUD*

“Concerning question 14, yes, all of the non-power attributes are intact, and no, no portion has been sold separately. It would be an improvement to not pose multiple questions in one overall question. Last year, without the checkboxes, I was able to answer as follows: ‘Yes, all of the environmental attributes are intact.’”

- *Tacoma Power*

“Not sure how to answer #7. The amount given out in incentives for renewable energy production July 2010-July 2011 was \$5,493 for 18,311 kWh produced. We did purchase EPP but did not use member funds to pay for it.”

- *Orcas Power and Light Cooperative*

“Regarding question 14, the dairy digesters listed in question 13 do sell the carbon offsets associated with the methane capture and destruction resulting from their project. However all of the non-power attributes associated with the REC production at those facilities remains intact as is dictated by industry standard, and governed by Green-e standards.”

- *Puget Sound Energy*

Conclusions

The voluntary programs resulted in 380,184,613 kilowatt-hours of green power sales in Washington for the first part of 2011. If sales continue at this rate, expected 2011 sales will be 529,705,964 kWh, a 5.6 percent increase over 2010. In 2010, they sold 500,130,501 of generated green power kWh in the completed year giving you approximately 265,733,670 kWh of wind power sold, 73,981,593 kWh of electricity generated by biomass, 78,346,596 kWh of electricity generated from landfill gas, 9,805,146 kWh of solar-electricity, 34,639,336 kWh of endorsed hydro-electricity, and 37,624,160 of geo-thermal generation through their programs.

For more details on the original individual utility programs, see the 2002 Green Power Report Appendix at http://www.cted.wa.gov/CTED/documents/ID_1407_Publications.pdf.